

## WHAT IS CLAIMED IS:

1. A rapid growing microorganism lacking endogenous plasmids.
- 5 2. The microorganism according to claim 1, wherein the rapid growing microorganism is of the genus *Escherichia*.
3. The microorganism according to claim 2, wherein the rapid growing microorganism is an *E. coli*.
- 10 4. The microorganism according to claim 3, wherein the rapid growing microorganism is an *E. coli* strain W.
5. The microorganism according to claim 4, wherein the rapid growing microorganism is selected from a group consisting of BRL3781 BRL3784 and *recA*<sup>-</sup> derivatives thereof.
- 15 6. A method of cloning, comprising the steps of:  
constructing a population of recombinant vectors;  
transforming a competent microorganism capable of rapid growth with  
the recombinant vector; and  
selecting the transformed microorganism containing the recombinant vector.
- 20 7. The method according to claim 6, wherein the rapid growing microorganism is of the genus *Escherichia*.
- 25 8. The method according to claim 7, wherein the rapid growing microorganism is an *E. coli*.
- 30 9. The method according to claim 8, wherein the rapid growing microorganism is an *E. coli* strain W.
10. The method according to claim 9, wherein the rapid growing microorganism does not contain endogenous vectors.

11. The method according to claim 6, further comprising the step of isolating said recombinant vector from said transformed microorganism.

5 12. The method according to claim 7, further comprising the step of growing the transformed microorganism at a temperature greater than 37°C.

13. The method according to claim 12, wherein the temperature is about 42°C.

10 14. The method according to claim 6, further comprising the step of growing the transformed microorganism at about 42°C.

15 15. A method of producing a protein or peptide, comprising the steps of :  
constructing a recombinant vector containing a gene encoding a protein or peptide protein;  
transforming the vector into a competent microorganism capable of rapid growth; and  
culturing the transformed microorganism under conditions that cause  
20 the transformed microorganism to produce said protein or peptide.

16. The method according to claim 15, wherein the rapid growing microorganism is of the genus *Escherichia*.

25 17. The method according to claim 16, wherein the rapid growing microorganism is an *E. coli*.

18. The method according to claim 17, wherein the rapid growing microorganism is an *E. coli* strain W.

30 19. The method according to claim 18, wherein the rapid growing microorganism does not contain endogenous plasmids.

20. A method of producing a microorganism for cloning, comprising the steps of:

obtaining a rapidly growing microorganism having endogenous plasmids; and

5       curing the microorganism of endogenous plasmids.

21. The method according to claim 20, wherein the microorganism is an *E. coli* W.

10 22. A method of transforming a rapid growing microorganism, comprising the steps of :

obtaining a competent microorganism capable of rapid growth; and

incubating said competent microorganism in the presence of one or more vectors under conditions which cause said one or more vectors to be

15 taken up by the microorganism.

23. The method according to claim 22, wherein the rapid growing microorganism is of the genus *Escherichia*.

20 24. The method according to claim 23, wherein the rapid growing microorganism is an *E. coli*.

25. The method according to claim 24, wherein the rapid growing microorganism is an *E. coli* strain W.

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26. The method according to claim 25, wherein the rapid growing microorganism does not contain endogenous plasmids.

27. A kit for cloning comprising a container containing a rapid growing

30 microorganism.

28. The kit according to claim 27, further comprising one or more vectors.

29. The kit according to claim 28, wherein said kit further comprises at least one component selected from one or more restriction enzymes, one or more ligase enzymes and one or more polymerases.

5 30. The kit according to claim 29, further comprising a container containing a recombination protein.

31. The kit according to claim 27, wherein the rapid growing microorganism is competent.

10 32. The kit according to claim 31, wherein the rapid growing microorganism is chemically competent.

15 33. The kit according to claim 31, wherein the rapid growing microorganism is electrocompetent.

34. A composition comprising rapid growing microorganisms.

20 35. The composition of claim 34, further comprising a component selected from a group consisting of a glycerol solution and a competence buffer.

25 36. The composition of claim 34, further comprising at least one component selected from one or more DNA fragments, one or more ligase enzymes, one or more vectors, one or more buffering salts and one or more recombination proteins.

37. A method of making competent rapid growing microorganisms, comprising the steps of:  
obtaining a rapid growing microorganism; and  
30 treating the rapid growing microorganism to make it competent.

38. The method of claim 37, further comprising the step of curing the rapid growing microorganism of endogenous vectors.

39. The method according to claim 37, wherein the rapid growing microorganism is of the genus *Escherichia*.

40. The method according to claim 39, wherein the rapid growing 5 microorganism is an *E. coli*.

41. The method according to claim 40, wherein the rapid growing microorganism is an *E. coli* strain W.

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